January 5, 2000 Beth Bosch

CONSULTANTS FIND EDISON OVERLOADED CABLES LEADING TO POWER FAILURES

The consulting firm hired to investigate Commonwealth Edison Company's power failures in July and August this year, said today that poor maintenance of the electrical system and routine overloading of electric cables led to the failure of the system.

Vantage Consulting, Inc., of Wayne, Pennsylvania, conducted the investigation into the power outages, focusing, particularly, on the equipment that failed, Edison's maintenance of the system and its emergency response to the outages. Walter Drabinski, president of Vantage Consulting, told the Commission Wednesday, that Commonwealth Edison's practice of overloading distribution cables contributed to the equipment failures.

And, he warned, Edison has continued to load electric cables at higher than recommended levels, which could lead to similar breakdowns in the system in the future.

ICC Chairman Richard Mathias said in August the Commission was "most interested in finding the root causes" of the power failures. Vantage concludes that the root cause of the outages was cable failure, due to a heat-induced breakdown of insulation brought on by repeated cable overloading.

Commonwealth Edison apparently "rated the current carrying capacity of its distribution cables higher than the cable manufacturers typically recommend under similar circumstances, and then repeatedly loaded the cables in excess of its own unusually high ratings," according to the consultant's report.

The Vantage report cited poor maintenance of equipment as a contributing factor in the equipment. The report indicated, for example, that Edison failed to clean cooling fins on a transformer at the Jefferson Street substation, and did not repair and return to service the transformers temperature alarm system. Later that transformer was replaced because of problems caused by overheating.

The consultants also concluded that the company caused the failure of an important transformer in the Northwest Substation by closing a circuit breaker without fixing the cable failure that caused the breaker to open. As a result, high current flowed through the transformer into the disabled cable and the transformer was damaged.

The consultant's report also noted that Commonwealth Edison continued to use a type of 1950's vintage insulating sleeve on some cables, even though Edison knew of problems with its reliability. The insulating sleeves were found to be involved in cable joint failures which occurred in July and August last year.

As part of its report to the Commission, Vantage recommended that Edison make a number of improvements to its system, including

- reassessing cable load rating criteria, establishing new, appropriate ratings and operating the system under these constraints;
- reexamine the cable configurations, loading, and sizes for the Northwest Substation to assure that similar overloads do not occur in the future;
- institute a traceable system of communications for maintenance work;
- reassess its policies for rating cables and transformers; and
- modify communications processes and record keeping to minimize problems associated with verbal communications of equipment corrective maintenance requirements.

The cost of the Vantage investigation is estimated at $300,000, and will be paid by Commonwealth Edison. A second and third phase of the investigation, to be conducted by Liberty Consulting Group of Quentin, Pennsylvania, will examine system-wide reliability.

A final report on the system-wide reliability is expected by the end of 2000.

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